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On the species of the genus Desis Walckenaer, 1837 (Araneae: Amaurobiidae*) found on the rocky shores of South Africa and South West Africa.

by

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SYNOPSIS

The morphological criteria used by authors to differentiate four species of *Desis* under revision are shown to be unreliable. An investigation of samples from a well studied single population revealed these criteria to be so widely variable as to bridge the particular character sets proposed for the various species. As a result of this, *D. tubicola* (Pocock), 1898, *D. pentheri* Simon, 1910 and *D. beckeri* Hewitt, 1913, are placed in synonymy of *D. formidabilis* (Cambridge), 1890.

INTRODUCTION

The aim of this revisionary study is to examine the validity of the four species ascribed to the genus *Desis* Walckenaer, 1837, found in the intertidal zone along the coastline of South West Africa and South Africa. The specimens studied come from various localities along this coastline, starting from Luderitz (Bay of Angra Pequena) on the West coast, southwards to Cape Agulhas and then eastwards as far as East London. There are no records of specimens from the coastline between East London and Port Shepstone. Collecting at various localities between Port Shepstone and Kosi Bay has not yielded any specimens. Up to the date of publication of this study the four species were recorded in taxonomic literature as: (1) *D. formidabilis* (Cambridge), 1890; (2) *D. tubicola* (Pocock), 1898; (3) *D. pentheri* Simon, 1910; (4) *D. beckeri* Hewitt, 1913.

Evidence is presented below showing that the morphological characters used by various authors to distinguish these four species are unreliable. As a consequence of this three of the species are placed in synonymy of *D. formidabilis*.

PREVIOUS RECORDS

Desis formidabilis (O.P. Cambridge), 1890

Robsonia formidabilis O.P. Cambridge, 1890, *Proc. Zool. Soc.*, p. 625, pl. 53 fig. 5, (♂, ♀). Type locality: Cape of Good Hope, South Africa.

Desis formidabilis Cambridge. Simon, 1896, *Bull. Soc. Zool. France*, **21**, p. 221 (*fide* C. F. Roewer, 1954, *Expl. Parc. Nat. Upemba*, **30**, p. 99). Simon, 1898, *Histoire naturelle des Araignées*, **2**, p. 225, 227, Paris. R. I. Pocock, 1902, *Proc. Zool. Soc. London*, **2**, p. 104. Simon, 1903, *Histoire naturelle des Araignées*, **2**, p. 1039. Simon, 1910, *Denkschr. Med. Nat. Ges. Jena*, **16**, p. 204 (♀). Hewitt, 1913, *Rec. Albany Mus., Grahamstown*, **2** (6), p. 478. Fage, 1925, *C. R. Assoc. fr. av. sci.*, **48**, p. 980 (*fide* Bonnet, 1956, *Biblio-*

*Formerly Agelenidae, now Amaurobiidae according to Lehtinen, 1967, p. 321—340.

graphia Araneorum, **2**, p. 1404). Blumenthal, 1935, *Zeits, Morph. Ökol. Tiere*, **29** (5), p. 706. Roewer, 1954, *Exp. Parc. Nat. Upemba*, **30**, p. 99.

Paradesis formidabilis Cambridge. R. I. Pocock, I898, *Bull. Liverpool Mus.*, **1**, p. 77.

Published Records:

Cape of Good Hope, ♂, ♀, types (Brit. Mus. London? not seen)**

Bay of Angra Pequena, ♀, many. (Simon, 1910, *Denkschr. Med. Nat. Ges. Jena*, 16, p. 204) (Where? not seen).

Desis tubicola (Pocock), 1898

Paradesis tubicola Pocock, 1898, *Bull. Liverpool Mus.*, **1**, p. 75, fig. 1-3 (♀). Type locality: Muizenberg, S. Africa. ("Wynberg" in Pocock's original description is an error, see Hewitt, 1913, *Rec. Albany Mus., Grahamstown*, **2** (6), p. 478).

Desis tubicola (Pocock). Pocock, 1902, *Proc. Zool. Soc. London*, **2**, p. 104. Simon, 1903, *Histoire naturelle des Araignées*, **2**, p. 1039. Simon, 1910, *Denkschr. Med. Nat. Ges. Jena*, **16**, p. 204. Hewitt, 1913, *Rec. Albany Mus., Grahamstown*, **2** (6), p. 477, fig. A. Fage, 1925, *C. R. Assoc. fr. av. sci.*, **48**, p. 980 (*fide* Bonnet, 1956, *Bibliographia Araneorum*, **2**, p. 1406). Roewer, 1954, *Exp. Parc. Nat. Upemba*, **30**, p. 100.

Published records:

Muizenberg, Cape, ♀ type (British Mus. London? not seen)**

Muizenberg, Cape, ♀, ♂, many (Albany Mus., Grahamstown, det. Hewitt, all seen)

Unpublished records:

Cape Peninsula, ♀, ♂, several (South African Museum, Cape Town, all seen)

Cape Peninsula, ♀ (Zoology Dept., University of Cape Town, seen)

Sea Point, ♀, ♂ many (Natal Museum, det. R. F. Lawrence, all seen)

Desis pentheri Simon, 1910

Desis pentheri Simon, 1910, *Denkschr. Med. Nat. Ges. Jena*, **16**, p. 205 (♀). Type locality: Port Alfred, South Africa. Hewitt, 1920, *S. Afr. J. Nat Hist.*, **2**, p. 111. Roewer, 1954, *Exp. Parc. Nat. Upemba*, 30, p. 99.

Published Records:

Port Alfred, ♀ type (where? not seen)

St. Croix Island, Algoa Bay, ♀ (Albany Mus., Grahamstown, det. Hewitt, seen)

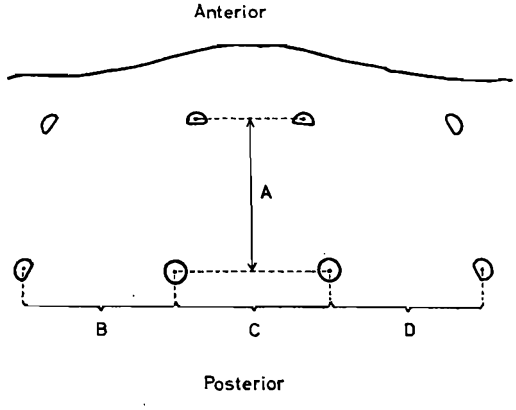

Fig. 1. Diagrammatic representation of the ocular arrangement found in *Desis*. See text for explanation of symbols.

** See addendum at end of paper.

Desis beckeri Hewitt, 1913

Desis beckeri Hewitt, 1913, *Rec. Albany Mus., Grahamstown*, **2** (6), p. 476, fig. B, C. (♀ immature). Type locality: Port Alfred, South Africa. Fage, 1925, *C. R. Assoc. fr. av. sci.*, **48**, p. 980 (*fide* Bonnet, 1956, *Bibliographia Araneorum*, **2**, p. 1404). Roewer, 1954, *Exp. Parc. Nat. Upemba*, **30**, p. 101.

Published Records:

Port Alfred, ♀ type, immature (Albany Mus., Grahamstown, seen)

Unpublished Records:

Port Elizabeth, ♀ immature (Natal Museum 8773, det. R. F. Lawrence, seen)

REVISION OF THE TAXONOMIC CHARACTERS USED BY PREVIOUS AUTHORS

Suspicion as to the validity of the various morphological character used by various authors to distinguish the four species of *Desis* listed above, first materialised when samples of specimens were taken from a very densely populated area within the intertidal zone on the rocky shores of "The Island" at Kommetjie which is situated on the western coast of the Cape Peninsula. All specimens studied came from the same habitat and the same locality and were kept alive in aquaria in the laboratory of the Zoology Department, University of Cape Town. Many observations were made, both in the field and in aquaria, on this population to determine intraspecific ethological characteristics. These observations eliminated the possibility of the existence of more than one species; they form part of another paper on the ecology of *Desis*, which is also published in the present volume of the *Annals of the Natal Museum*. Possible reproductive isolation was discounted by repeatedly observed matings within the population. A random sample of both males and females was taken from this population and used to analyse the various morphological characters used by former workers.

Roewer's key (1954, p. 94, 95) to the six species of *Desis* that have been described from the Ethiopian region, divides them into two main groups of three species each, using differences of interocular distances to separate the two groups. In doing so, Roewer followed Simon (1910, p. 204) with the exception that Simon's key does not include two species (one in each group) that had not yet been described. Roewer's first group leads one to the identification of *D. tangana*, *D. crosslandi* and *D. pentheri* while his second group leads one to the identification of *D. formidabilis*, *D. tubicola* and *D. beckeri*. *D. tangana* Roewer, 1954 and *D. crosslandi* Pocock, 1902 were described from Tanga (north-eastern coast of Tanzania) and Zanzibar respectively and are not considered in this revision.

In accordance with both Roewer's and Simon's keys, specimens having the distance between the posterior median eyes equal to or greater than the distance between a posterior median and a posterior lateral eye, (i.e. C $\geqslant$ B in fig. 1) belong to their first group. In addition specimens with the width of the trapezoidal group of the four median eyes not at all or not much greater than the length (i.e. C $\geqslant$ A in fig. 1). also belong to their first group. Alternatively specimens with the distance between the posterior median eyes much smaller than that between one of them and a contiguous posterior lateral (i.e. C $\ll$ B in fig. 1) belong to their second group. Additionally specimens with the width of the trapezoidal

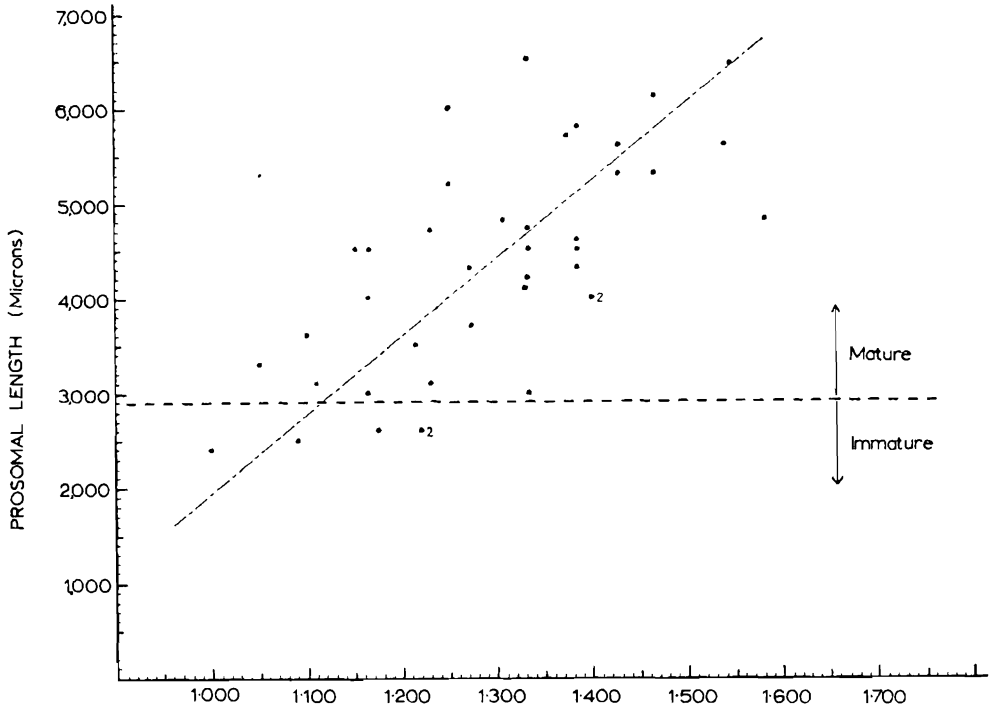

FIG. 2,a.

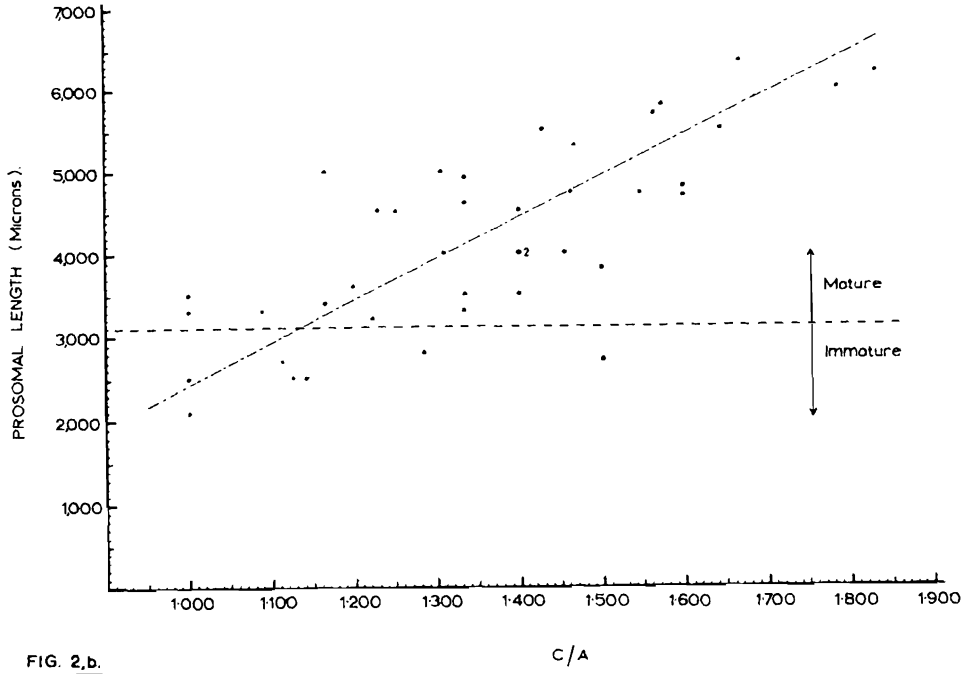

FIG. 2,b.

Fig. 2(*a*) Ratios C/A (see text) plotted versus the prosomal lengths for a sample of forty female specimens of *Desis* from "The Island", Kommetjie.

Fig. 2(*b*) Ratios C/A (see text) plotted versus the prosomal lengths for a sample of forty male specimens of *Desis* from "The Island," Kommetjie.

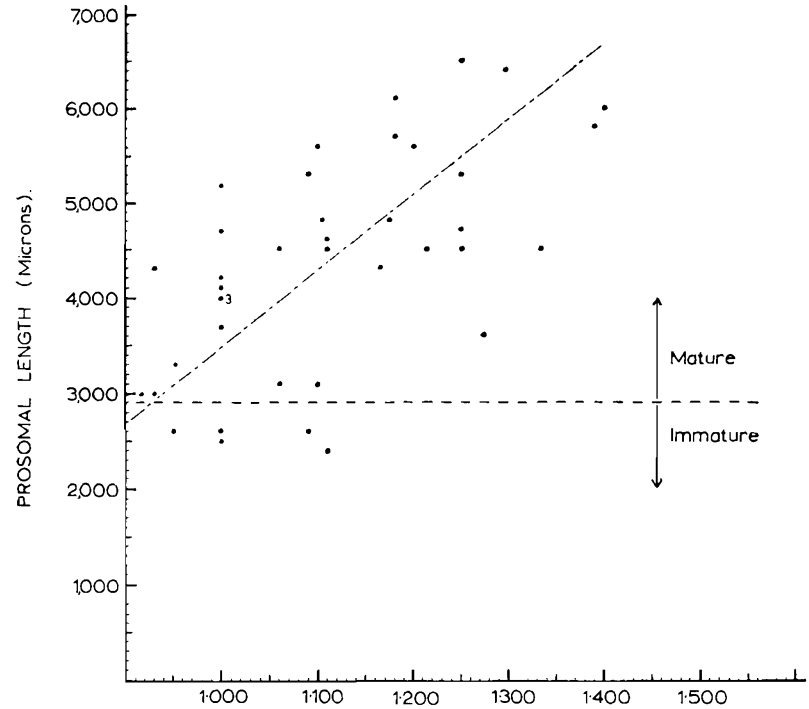

FIG. 2,c.

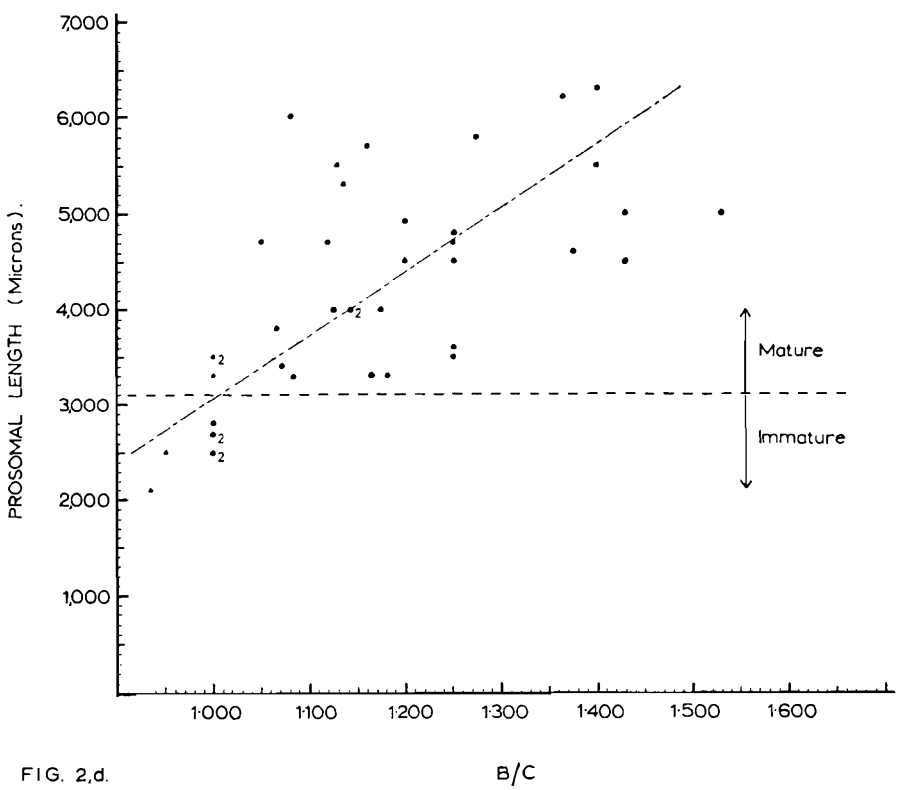

FIG. 2,d.

Fig. 2(*c*) Ratios B/C (see text) plotted versus the prosomal lengths of the female specimens used for the data in fig. 2(*a*).

Fig. 2(*d*) Ratios B/C (see text) plotted versus the prosomal lengths of the male specimens used for the data in fig. 2(*b*).

The regression lines are all hand drawn, and a number next to a point on the graphs indicates the number of readings obtained for that particular point.

group of the four median eyes much greater than the length (i.e. C $\gg$ A in fig. 1) also belong to their second group. Making use of ratios of the relevant distances one should get the following situation:

if $\frac{C}{A} = 1.0 \longrightarrow$ group 1 $\longrightarrow$ *D. pentheri.*
if $\frac{C}{A} \gg 1.0 \longrightarrow$ group 2 $\longrightarrow$ *D. formidabilis*, *D. tubicola* and *D. beckeri.*
if $\frac{B}{C} \leqslant 1.0 \longrightarrow$ group 1 $\longrightarrow$ *D. pentheri.*
if $\frac{B}{C} \gg 1.0 \longrightarrow$ group 2 $\longrightarrow$ *D. formidabilis*, *D. tubicola* and *D. beckeri.*

It was found that these criteria may apply to single or only a few specimens collected at various localities. When dealing with a large sample of material from a single locality, as was done for this study, the range of variability of interocular distances expressed as ratios was found to be so great as to render the use of this character totally unreliable as a specific criterion. The relevant interocular distances of forty females and forty males of *Desis* collected at "The Island", Kommetjie were measured. The ratios $\frac{C}{A}$ and $\frac{B}{C}$ (see above and fig. 1) were worked out for both sexes and plotted against the sagittal length of the prosoma to give the four graphs in fig. 2. As the populations sampled came from a locality ("The Island") not more than forty-eight kilometers (along the coastline) from the type locality (Muizenberg) of *D. formidabilis* and *D. tubicola*, one would expect interocular ratios $\frac{C}{A}$ and $\frac{B}{C}$ to be much greater than 1.0 (see above). This is not supported by the data plotted in fig. 1 a, b, c, and d. In fig. 2a, $\frac{C}{A}$ values between 1.000 and 1.580 were obtained for females. In fig. 2b, $\frac{C}{A}$ values between 1.000 and 1.833 were obtained for males. In fig. 2c and d values even less than 1.0 were obtained for $\frac{B}{C}$. Clearly then the criteria of interocular distances cannot be relied upon as differentiating characters. It may be of interest that in figs. 1 a, b, c and d the readings are distributed in such a way as to suggest a positive correlation between prosomal length and the various ratios and hence the relevent interocular distances. The regression lines in the four figures are hand-drawn and merely serve to show the possible correlations.

The description of *D. pentheri* by Simon (1910) is unfortunately very short and without any drawing. The only taxonomic criteria used to differentiate *D. pentheri* from *D. tubicola* and *D. formidabilis* are the differences in interocular distances described further above. This has however been shown to be unreliable. In addition Simon's female type specimen (not seen) was small (10 mm.). Provided that the opisthosoma had not shrunk considerably at the time the measurements were taken, this would mean that the prosomal length of the type specimen is in the region of 3 mm. suggesting that it was on the threshold of maturity (see figs. 1 a and c). It therefore becomes apparent that there are no taxonomic criteria to separate *D. pentheri* from the species in the second group. There are however other criteria used by previous authors to differentiate between the three species of *Desis* in the second group. These are to be dealt with presently.

As Roewer's second group in his key (p. 94, 95, 1954) adequately lists all the specific criteria used by previous authors to separate the remaining three species of *Desis*, continuous reference will be made to it in the following text.

The absence of any spines on legs 1 - 4 of *D. formidabilis* is the only taxonomic criterion which allegedly differentiates it from *D. tubicola* and *D. beckeri.* The presence of spines distally on the metatarsi of legs 2 - 4 leads to the identification of *D. tubicola* and

D. beckeri. Pocock (1902 p.104) and Hewitt (1913 p. 477-8) have expressed their doubts as to the validity of this criterion. Hewitt was informed by the Rev. N. Abraham who collected the types of both *D. formidabilis* and *D. tubicola*, that both species were collected at Muizenberg, Cape Peninsula. Extensive collecting was done at various times of the year at the type locality in 1966 by myself and not a single specimen could be found with all the legs *totally* unspined. It was found, however, that there is a wide variation in the number of spines present on the various leg segments, from specimens with several spines on all the three distal segments of the three hind pairs of legs to specimens with no spines at all except very small ones on the tarsi of the three hind pairs of legs. Samples of eleven males and females were taken from the population at "The Island" Kommetjie and the number of spines on their legs tabulated in table 1. The results obtained in table 1 clearly show the wide variation that occurs. The legs of specimens No. 5 (♂) and No. 6 (♀) for instance are totally void of spines except for the small tarsal ones. Yet specimen No. 3 (♂) has distal spines on the metatarsi of legs 2 - 4 as well as on tarsi and tibia 3 - 4; in addition it has one spine on the middle shaft of the left metatarsus of leg 3. Specimen No. 10 (♀) shows a similar distribution with an extra spine on the middle shaft of the metatarsus of leg 4. In specimens No. 16 (♀) and No. 24 (♀) the variation is extended to the presence of a single spine at the distal end of the second tibia. The right tarsal organs of all the male specimens used for the data in fig. 2 c and d and table 1 were closely examined and found to be all the same. Except for overall differences in sizes all were morphologically identical to the drawings in fig. 3 a and b. In all the specimens examined the embolus actually emerges from the tegulum, at point X in figs. 3 a and b. In figs. 3 a and b, the embolus is shown emerging at point Y. This is due to the fact that the proximal external portion of the embolus tends to lodge itself in the fold formed by the proximal end of the conductor and the postero-ventral edge of the tegulum. The epygines of all females used were examined likewise and all were found to be the same. There is thus no doubt that all the specimens dealt with, especially the males, all belong to the same species.

From the evidence presented above, it is reasonable to infer that Cambridge's type specimens of *D. formidabilis* (1890) were intrinsic variants as shown for specimens 5 and 6 in table 1. Of the presence of very small spines on the tarsi of legs 3 - 4 in table 1 and other specimens studied from the type locality, one can but conclude that Cambridge did not identify them as spines, owing to their very small size when compared to the ones on the metatarsi and tibia of legs 2-4, or simply that he failed to see them**. Hence it is logical to place *D. tubicola* in synonymy of *D. formidabilis.*

Hewitt (p. 477, 1913) in his description *D. beckeri* maintained that this species "may at once be distinguished from *D. tubicola* Pocock of which the Albany Museum possesses a good series of both sexes from Muizenberg (presented by Dr. W. F. Purcell), through the arrangement of the teeth on the fang groove, and the spines on the legs (second tibia, third metatarsus, . . ." The unreliability of a difference in the number of spines on the legs as a character of taxonomic importance need not be discussed further. A difference in the arrangement of the distal teeth on the fang groove is thus the only remaining taxonomic character that is valid in separating the two species. According to Hewitt (p. 476, 1913) in

** See addendum at end of paper.

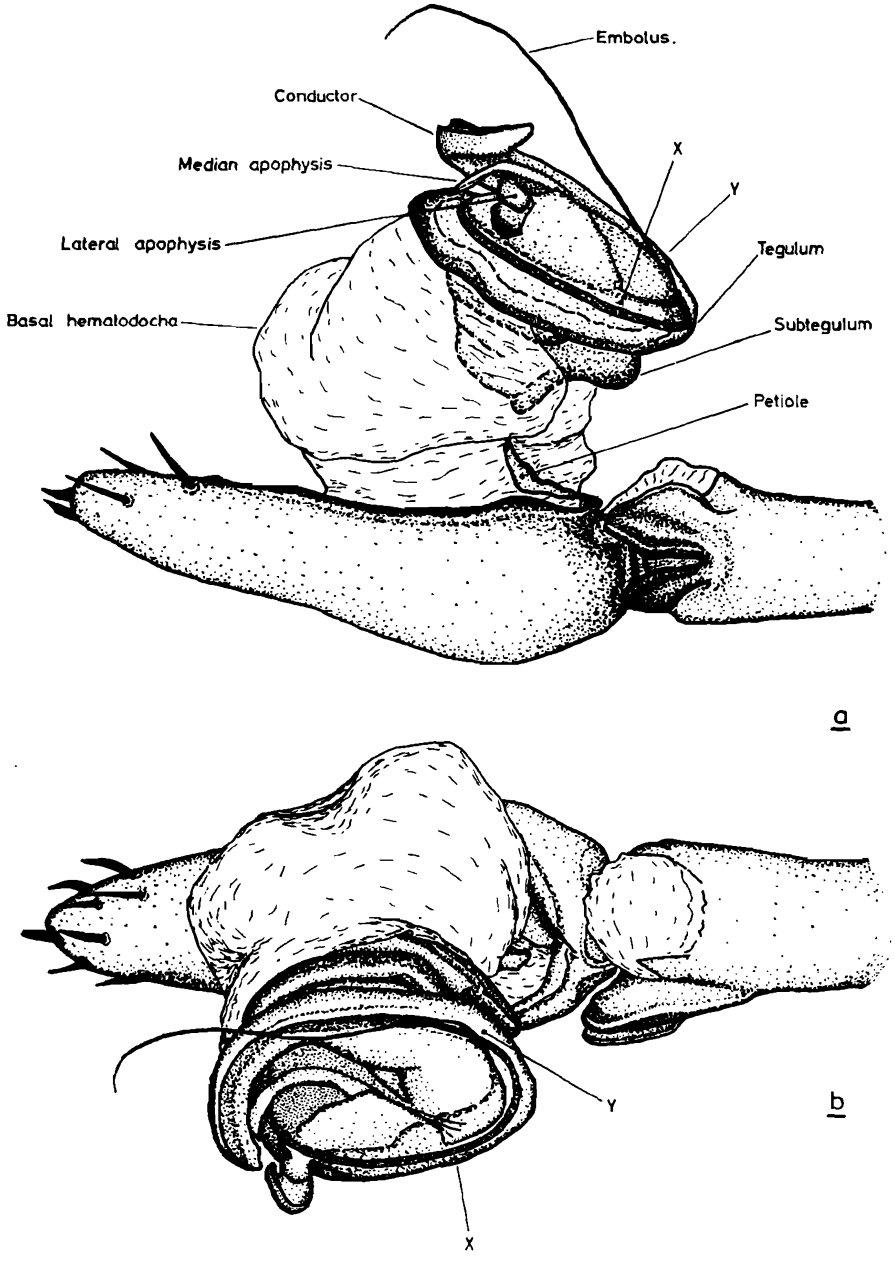

Fig. 3(*a*) Ectal view of the right male tarsal organ of a specimen of *Desis* from "The Island" Kommetjie. The tarsal organ was first boiled in 10% KOH and then immersed in distilled water to cause expansion and clearing of the cuticle. (See text for meaning of X and Y).

Fig. 3(*b*) Ventral view of the tarsal organ drawn in fig. 3(*a*).

D. beckeri: "of the two teeth on the outer border of the fang groove, the distal is much the larger, the proximal one being very small and very much larger to the second tooth of the inner row than to the distal one of the outer row (see text fig. B):". This situation is represented in fig. 4 c of this paper. Fig. 4 b is similar to Hewitt's fig. A (p. 478, 1913) and represents the tooth arrangement allegedly found in *D. tubicola.* The arrangement of the teeth on the distal end of the fang groove of all the specimens listed in table 1 was closely studied. This arrangement was found to differ to such an extent as to completely invalidate Hewitt's findings (see table 1 and figs. 4, a, b, c). In fig. 4 only three alternatives are represented to facilitate tabulation. In reality the range of variation extends anywhere between the two extremes represented by fig. 4 a and c for both females and males. It may be of interest to mention that the distance between the ventral distal margin of the fang groove and the first tooth of the inner row was found to be variable amongst specimens having chelicerae of the same size (See variable distance in fig. 4 a).

In view of the above findings, it is logical to place *D. beckeri* in synonymy of *D. tubicola.*

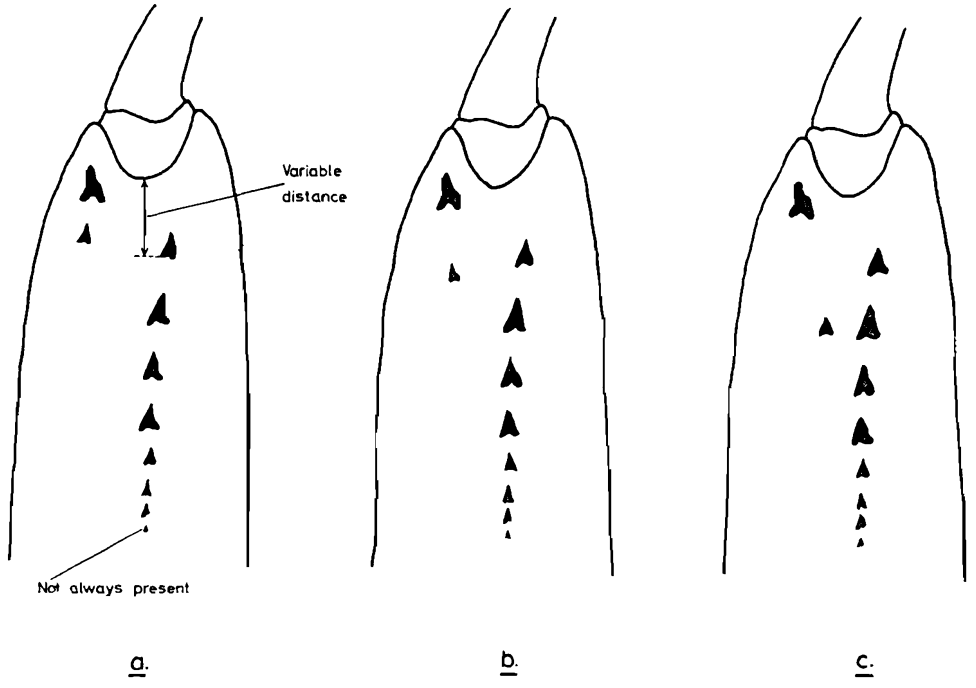

Fig. 4(*a*) (*b*) and (*c*). Ventral view of the fang groove on the right chelicerae of three specimens of *Desis* from "The Island", Kommetjie. See text for explanations.

CONCLUSION

Simon's (1910) and Roewer's (1954) use of differences in interocular distances to separate *D. pentheri* from *D. formidabilis*, *D. tubicola* and *D. beckeri* on the specific level has been shown to be unreliable. The synonymy of *D. pentheri* and *D. beckeri* with *D. tubicola* and the synonymy of the latter with *D. formidabilis* have also been demonstrated.

Accordingly, *D. tubicola*, *D. pentheri* and *D. beckeri* are placed in synonymy of *D. formidabilis*.

The following is a formal statement of this synonymy:

Desis formidabilis (Cambridge), 1890

Robsonia formidabilis Cambridge, 1890, *Proc. Zool. Soc.*, p. 625, pl. 53 fig. 5, (♂, ♀).
Paradesis tubicola Pocock, 1898, *Bull. Liverpool Mus.*, **1**, p. 75, fig. 1-3, (♀). **NEW SYNONYMY**
Desis pentheri Simon, 1910, *Denkschr. Med. Nat. Ges. Jena*, **16**, p. 205 (♀). **NEW SYNONYMY**
Desis beckeri Hewitt, 1913, *Rec. Albany Mus. Grahamstown*, 2(6), p. 476, fig. B, C. (♀ immature). **NEW SYNONYMY**

ADDITIONAL RECORDS

The Zoology Department, Cape Town University, had several unidentified specimens in its collection. The specimens from localities listed below are all *D. formidabilis* (Cambridge).

Catalogue No.	*Locality*
L 92	East London, 1 immature ♂, 3 ♀
S 164	Stil Bay, 2♀
F 199	St. James, 2 juveniles
A 394	Oudekraal, 1 ♀
LU 3c	Luderitz (S.W.A.), 1 immature ♂.
LU 4	Luderitz (S.W.A.), 1 ♀
B 19	Lamberts Bay, 1 immature ♀
SB 159 H	Saldanha Bay, 1 immature ♀
ARR. 6. E	Arniston, 1 ♀
ARR. 1. V	Arniston, 1 ♀

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I would like to thank the following gentlemen and institutions for the loan of specimens used in this study: Mr. John Field for having sent the whole collection of intertidal spiders in the Zoology Department, University of Cape Town; Dr. R. F. Lawrence for the loan of specimens in the collection of the Albany Museum, Grahamstown. I am greatly indebted to Mr. B. R. Stuckenberg for reading and offering much appreciated advice in the presentation of this paper. Heartfelt thanks are also due to my wife for the help given in collecting samples of populations from the Cape Peninsula.

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———— 1920. Notes on the Fauna of St. Croix Island. *S. Afr. Journ. Nat. Hist.*, **2**: 98-112.

TABLE I

See text for explanation of tabulated information.

Specimen reference number	Sex	Number of spines on legs																Position of proximal tooth on outer border of fang groove	♂ palp	♀ epigyne
		Legs 1		Legs 2		Legs 3						Legs 4								
		L.	R.	L. Metat.	R. Metat.	L. tars.	R. tars.	L. metat.	R. metat.	L. tib.	R. tib.	L. tars.	R. tars.	L. metat.	R. metat.	L. tib.	R. tib.			
2	♂	0	0	1	1	5	6	1	2	0	0	7	7	2	2	1	0	fig. 3*a*	id.	
3	♂	0	0	2	2	4	5	4+1m	4	2	2	7	7	3	3	2	2	fig. 3*c*	id.	
5	♂	0	0	0	0	6	5	0	0	0	0	6	7	0	0	0	0	fig. 3*a*	id.	
8	♂	0	0	2	2	1	5	4	4	0	0	5	5	1	3	1	1	fig. 3*b*	id.	
13	♂	0	0	1	0	6	5	1	1	0	0	7	7	1	1	0	0	fig. 3*a*	id.	
17	♂	0	0	2	2	5	5	4	4	0	0	5	5	4	3	1	1	fig. 3*c*	id.	
19	♂	0	0	1	1	6	6	1	1	0	0	7	7	1	1	0	0	fig. 3*a*	id.	
20	♂	0	0	0	1	4	6	1	1	0	0	7	7	2	1	0	1	fig. 3*a*	id.	
21	♂	0	0	2	2	5	4	3	3	0	0	4	4	3	3	1	1	fig. 3*c*	id.	
23	♂	0	0	1	0	6	5	1	1	0	0	8	7	1	1	0	1	fig. 3*a*	id.	
9	♂	0	0	1	1	6	5	1	1	0	0	6	6	0	0	0	0	fig. 3*b*	id.	
1	♀	0	0	2	2	4	4	3	3	0	0	5	5	3	3	1	0	fig. 3*c*		id.
4	♀	0	0	3	2	4	4	3	4	1	2	6	6	3	4	2	2	fig. 3*c*		id.
6	♀	0	0	0	0	5	6	0	0	0	0	6	5	0	0	0	0	fig. 3*b*		id.
7	♀	0	0	3	2	4	4	3	2	2	0	6	5	3	2	1	2	fig. 3*c*		id.
10	♀	0	0	3	2	4	4	3	4	1	1	6	5	3+1m.	3	1	1	fig. 3*c*		id.
11	♀	0	0	2	3	5	4	4	4	0	0	5	6	4	3	1	1	fig. 3*c*		id.
14	♀	0	0	1	1	6	5	2	1	0	0	7	7	1	1	0	0	fig. 3*a*		id.
15	♀	0	0	0	0	5	6	1	2	0	0	7	7	1	1	1	0	fig. 3*b*		id.
16	♀	0	0	3(tib.1)	3	4	4	4	4	2	2	6	6	3	3	2	2	fig. 3*c*		id.
18	♀	0	0	1	1	6	6	2	1	0	0	7	7	2	1+1m.	0	0	fig. 3*a*		id.
24	♀	0	0	3(tib.1)	3(tib.1)	5	4	3	3	2	2	6	6	3	3	2	2	fig. 3*c*		id.
D. beckeri type	♀ im.	0	0	3(tib.1)	3(tib.1)	6	6	4	4+2m.	2	2	7	7	3	2	2	2	fig. 3*c*		im.

L, left; R, right; tars., tarsus; metat., metatarsus; tib., tibia; im., immature; m., median portion of the shaft of a particular segment; id., identical to all the others of the same sex.

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————1898. *Histoire naturelle des Araignées*, **2**(2): 193-380. Paris, *Encyclopédie Roret.*

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ADDENDUM

Up to the time of going to press it had been impossible to locate the types of *D. formidabilis* (O.P. Cambridge), 1890 and *D. tubicola* (Pocock), 1898. Thanks to the greatly appreciated co-operation of Dr J. A. L. Cooke (Oxford) and Mr D. J. Clark (British Museum), the four syntypes of *D. formidabilis* (2 ♂, 2 ♀) were found to have been deposited at the University Museum (Hope department of Entomology), Oxford, and the type of *D. tubicola* (1 ♀) at the British Museum (Natural History). I wish to express my gratitude to the above gentlemen and their respective institutions for the loan of these specimens.

The four syntypes of *D. formidabilis* bear the following catalogue numbers: 92 (1 ♀, 1 ♂); 93 (1 immature ♀, 1 ♂). The leg spination of these four syntypes was investigated. All four specimens, in contradiction to Cambridge's (p. 626, 1890) original description,

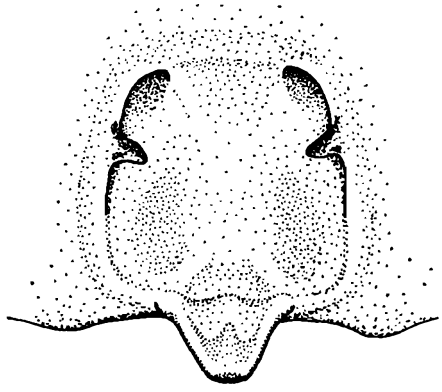

Fig. 5. Epigyne of *D. Formidabilis* par ectotype 92 (♀) in ventral view

were found to have varying numbers of spines on their legs. Using the sequence adopted in table 1 of this paper (reading from left to right and starting with leg 1), the leg spination of the four syntypes of *D. formidabilis* is as following:

92 (♀): 0, 0; 1, 1; 6, 6, 2, 3, 0, 0; 7, 7, 1, 1, 1, 1.
92 (♂): 0, 0; 1, 1; 6, 6, 1, 2, 0, 0; 7, 7, 1, 1, 0, 0.
93 (♂): 0, 0; 1, 1; 6, 6, 2, 2, 1, 0; 7, 7, 1, 2, 1, 1.
93 (immature ♀): 0, 0; 1, 0; 6, 4, 1, 1, 0, 0; 6, 6, 1, 1, 0, 0.

In view of the fact that Cambridge did not designate a holotype and paratypes in his original description (p. 625-626, 1890), specimen 92 (♂) is hereby selected and labelled as the lectotype of *D. formidabilis* (O.P. Cambridge), 1890, and the remaining three syntypes as paralectotypes.

The Lectotype is in good condition (a small portion of the tarsus of the first right leg was found missing) and its tarsal organs conform to figs 3(*a*) and (*b*) of this paper.

Paralectotype 92 (♀) is also in good condition and its epigyne is represented in fig. 5.